b)   combining said target protein with ~~one or more~~ a library simultaneously containing at least two ~~of~~ non-oligomeric ligand candidates wherein said ligand candidates each comprise a disulfide bond, and wherein said ligand candidates each are less than about 2000 daltons in size, under disulfide-exchange conditions, in the presence of a reducing agent, ~~c)~~ ~~forming a covalent target protein-ligand conjugate~~ wherein at least one ligand candidate binds to the target protein and forms a disulfide bond with the target protein ~~under disulfide-exchange conditions~~ to yield a target protein-ligand conjugate; and

~~d)~~ c) ~~detecting the formation of said covalent target protein-ligand conjugate and~~ ~~identifying the non-oligomeric ligand present in said conjugate~~ determining the identity of the non-oligomeric ligand present in said target protein-ligand conjugate.

Claim 41   (Previously added)   The method of claim 40 wherein the ligand is less than 1500 daltons.

Claim 42   (Previously canceled)

Claim 43   (Previously added)   The method of claim 40 wherein the ligand is less than 750 daltons.

Claim 44   (Previously canceled)

Claim 45   (Previously added)   The method of claim 40 wherein step b) is performed in the presence of a reducing agent.

Claim 46   (Previously added)   The method of claim 40 wherein step c) is performed in the presence of a reducing agent.

Claim 47   (Previously added)   The method of claim 45 or claim 46 wherein the reducing agent is 2-mercaptoethanol.

Claim 48   (Currently amended) The method of claim 40 wherein the ~~formation of~~ identity of the non-oligomeric ligand present in the target protein-ligand conjugate is ~~detected~~ determined using mass spectrometry.

Claim 49   (Previously added)   The method of claim 48 wherein the target protein-ligand conjugate is subjected directly to mass spectrometry analysis.

Claim 50   (Previously added)   The method of claim 48 wherein the target protein-ligand conjugate is fragmented prior to mass spectrometry analysis.

Claim 51   (Currently canceled)

Claims 52-58 (Previously canceled)

Claim 59   (Currently amended)   A method for identifying a non-oligomeric ligand that binds to a target protein wherein said ligand less than about 750 daltons in size, said method comprising:

a)   obtaining said target protein comprising a -SH group, masked -SH group, or activated -SH group;

b)   combining said target protein with ~~one or more~~ a library containing at least two non-oligomeric ligand candidates in a mixture wherein said ligand candidates each comprise a disulfide bond, and wherein said ligand candidates are each less than about 750 daltons in size, under disulfide exchange conditions, in the presence of a reducing agent;, ~~c) forming a target protein-ligand conjugate~~ wherein at least one ligand candidate binds to the target protein and forms a covalent disulfide bond with the target protein ~~under disulfide exchange conditions~~ to yield a target protein-ligand conjugate;

~~d)~~ (c)   separating the covalent target protein-ligand conjugate from the mixture; and

~~e)~~ (d)   ~~identifying~~ determining the identity of the ligand present in said conjugate.

Claim 60   (Previously added)   The method of claim 59 wherein the ligand is identified using mass spectrometry.

Claims 61-63 (Previously canceled)

Claim 64   (New) The method of claim 40 wherein said -SH group, masked -SH group, or activated -SH group is associated with a cysteine residue of said target protein.

Remarks/Arguments

The foregoing amendment does not add new matter to the specification. Support for the amendment of claim 40 and claim 59 is at least at page 18, line 24; page 20, lines 27-32, and the Example. Support for newly added claim 64 is at least at page 9, line 22 and page 10, lines 12-16.